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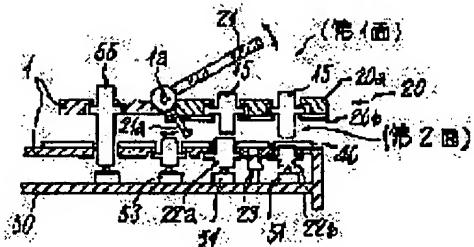
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## (54) OPERATION PART FOR COMPOSITE COPYING MACHINE

### (57) Abstract:

**PURPOSE:** To provide the operation part of a composite copying machine which is constituted so that the external size of the copying machine is prevented from being enlarged because the number of the keys of the operation part is increased, the function thereof is made multiple and the operability thereof is enhanced.

**CONSTITUTION:** This operation part is provided with a first surface normally appearing to the front surface and a second surface normally hidden on the lower surface side of the first surface. The first surface is a key unit 20 constituted of a key top 15, a case 20a holding the key top 15 and a switching cover 21 equipped with change-over switches 21a and 53 and coupled to a body case 1 by a shaft 1a so that it can be opened and closed up and down. The second surface is constituted of key tops 22a and 22b, an electric switch 51 actuated by being pressed by the key tops 22a and 22b, a printed substrate 50 loading electric parts such as a switch, a light emitting element 23 and a sheet 40 constituted so that a character is printed on the surface. Besides, the unnecessary key part is blindfolded by the sheet and the function of the key is switched by the combination of the depressing of an opening and closing detection switch and the specified key.



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**CLAIMS****[Claim(s)]**

[Claim 1] In the control unit of the multifunction copier which was equipped with functions, such as facsimile (FAX) and a printer, in addition to the copy function It has the 1st page which has appeared in the front face, and the 2nd page hidden in the inferior-surface-of-tongue side. Usually, the 1st page In the key unit which consists of a case where a keytop and the component concerned are held, and a change-over lid which formed the change-over switch, it is combined with a shaft and a body case is considered as the configuration which can be opened and closed up and down. The 2nd page The electric switch which is pushed with a keytop and the components concerned and operates, and the printed circuit board equipped with electrical parts, such as the switch concerned and a light emitting device, And the control unit of the multifunction copier characterized by having consisted of sheets by which alphabetic printing was carried out to the front face, and having carried out eye hiding of the unnecessary key part with the sheet concerned, and considering as the configuration which switches the function of a key with the combination under a closing motion pilot switch and an assignment key press.

[Claim 2] The control unit of the multifunction copier characterized by displaying a warning message on a screen in the control unit of a multifunction copier according to claim 1 when the key unit has opened at the time of FAX mode.

[Claim 3] The control unit of the multifunction copier characterized by displaying a warning message on a screen in the control unit of a multifunction copier according to claim 1 when the FAX key is pressed at the time of copy mode.

[Claim 4] The control unit of the multifunction copier characterized by shifting to the mode specially in the control unit of a multifunction copier according to claim 1 when the number coincidence push of assignment of the hidden key of the 2nd page which is not used is carried out.

[Claim 5] The control unit of the multifunction copier characterized by switching the mode automatically after assignment time amount in the control unit of the multifunction copier of claim 2 and three publications after displaying a warning message.

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## DETAILED DESCRIPTION

## [Detailed Description of the Invention]

[0001]

[Industrial Application] This invention relates to the control unit of the multifunction copier which was equipped with functions, such as facsimile (FAX) and a printer, in addition to the copy function.

[0002]

[Description of the Prior Art] In recent years, not only a copy but facsimile, a printer function, etc. are added by compound-ization, those actuation keys increase a digital process copying machine, it complicates and a control unit is becoming the situation it is hard for a user to operate. In addition, as a control unit corresponding to a compound machine, the control unit which used the switch input device and the touch panel is proposed, for example (JP,3-88012,A, JP,1-283617,A, etc.).

[0003]

[Problem(s) to be Solved by the Invention] By the way, when all the actuation keys for filling the above-mentioned compound function are arranged all over a control panel, since a control panel becomes large, the body of a machine becomes large, and the technical problem that the description of it being fewer than the conventional installation tooth space, and ending by compound-ization cannot be taken out occurs. Moreover, actuation different from the function which may carry out the depression of the key only for another, without there being the operability of a compound machine and a problem of an operation mistake, for example, a user noticing as another technical problem at the time of each assignment modes (copy mode, FAX mode, etc.), and a user wishes may be performed. In order to prevent this, when the key only for another is pressed, it is necessary to tell a user about a mistake easily.

[0004] This invention is made in view of the above-mentioned situation, increase of the appearance by the increment in the number of keys of a control unit is suppressed, and it aims at offering the control unit of the multifunction copier whose operability can also improve. Moreover, this invention aims at offering the control unit of the multifunction copier which can tell a user about a mistake easily, even if the key only for another is pressed at the time of each assignment mode.

[0005]

[Means for Solving the Problem] In order to attain the above-mentioned purpose, invention according to claim 1 In the control unit of the multifunction copier which was equipped with functions, such as facsimile (FAX) and a printer, in addition to the copy function It has the 1st page which has appeared in the front face, and the 2nd page hidden in the inferior-surface-of-tongue side. Usually, the 1st page In the key unit which consists of a case where a keytop and the component concerned are held, and a change-over lid which formed the change-over switch, it is combined with a shaft and a body case is considered as the configuration which can be opened and closed up and down. The 2nd page The electric switch which is pushed with a keytop and the components concerned and operates, and the printed circuit board equipped with electrical parts, such as the switch concerned and a light emitting device, And it is characterized by having consisted of sheets by which alphabetic printing was carried out to the front face, and having carried out eye hiding of the unnecessary key part with the sheet concerned, and considering as the configuration which switches the function of a key with the combination under a closing motion pilot switch and an assignment key press.

[0006] In the control unit of a multifunction copier according to claim 1, invention according to claim 2 is characterized by displaying a warning message on a screen, when the key unit has opened at the time of FAX mode.

[0007] In the control unit of a multifunction copier according to claim 1, invention according to claim 3 is characterized by displaying a warning message on a screen, when it has the FAX key pressed at the time of copy mode.

[0008] In the control unit of a multifunction copier according to claim 1, invention according to claim 4 is characterized by shifting to the mode specially, when the number coincidence push of assignment of the hidden key of the 2nd page

which is not used is carried out.

[0009] In the control unit of the multifunction copier of claim 2 and three publications, after invention according to claim 5 displays a warning message, it is characterized by switching the mode automatically after assignment time amount.

[0010]

[Function] Hereafter, this invention is explained more to a detail. In order that this invention may solve the aforementioned technical problem, a (1) general common actuation key, So that may divide the exclusive key for every function, the exclusive key which a user mainly uses also by the exclusive key may be taken out to the 1st page, and few exclusive keys of operating frequency may be hidden in the 2nd page and the number of keys may not be made to increase To the 1st page at the key unit with a change-over switch in which vertical closing motion is possible, and a key unit Furthermore, by giving the keytop and the printed circuit board in which the switch is installed which prepare the change-over lid which switches the key function of a key unit, are interlocked with a key unit and operate as the 2nd page in the key unit lower part The appearance rise by the increment in the number of keys of a control unit can be suppressed, and operability can also be raised. Moreover, the functional change-over approach of a key performs change-over actuation by carrying out the depression of the up key to the change-over with a change-over lid at the time of closing motion of a key unit.

[0011] As still more nearly another technical problem, when the key only for another is pressed at the time of each assignment mode, it is necessary to tell a user about a mistake easily but, and in order to solve this technical problem, when a key unit is opened at the time of (2) FAX mode, this invention can emit warning and can tell a user about abnormalities. Moreover, when the key only for FAX is pressed at the time of (3) copy modes, warning can be emitted and a user can be told about abnormalities.

[0012] in order to use a control unit as a compact further on the other hand -- this invention -- (4) -- the key of the 2nd page which is not used can be used and it can shift to the special mode under an assignment key press.

[0013] On the other hand, although it was only emitting warning to a user in the above (2) and (3), in order to raise operability to a user after that, it can shift to the mode which the user specified after warning generating of (5) above (2) and (3), and assignment time amount progress in this invention.

[0014]

[Example] Hereafter, the example of this invention is explained with reference to a drawing. First, the example of the control unit of the multifunction copier of the former for a comparison is shown. Drawing 11 is the top view of the control unit of a common multifunction copier. This control unit consists of an input-related hardkey and output-related concentration displays (liquid crystal screen (LCD) etc.) 14. As hardkey relation, it consists of the start key 2 which performs a copy start, the clearance/stop key 3 of the number clearance of \*\*, the mode clear key 5 returned to an initial state, the program key 6, the break key 7 of interruption of operation, the ten key 4 of the number input of \*\*, the concentration-related automatic concentration key 8, a photograph and a concentration key 9, the form-related automatic form key 11, a form key 10, a variable-power-related actual-size key 12, and zooming key 13 grade. On the other hand, as output relation, it consists of concentration displays 14 which contained LED of \*\*\*\*\*, jam position representation, an alarm display, etc. In addition, in the latest compound machine, the edit relation key 16 peculiar to a digital process copying machine is arranged by the facsimile relation key 15 and right-hand side on left-hand side.

[0015] Thus, since a control unit becomes large since the actuation key of the added function is arranged at a flat surface, and a key is arranged on the whole surface, troubles -- it is hard to carry out actuation -- have generated the control unit for the copying machines of a complex type. This invention solves these technical problems.

[0016] Drawing 1 (a) is the top view of the control unit of the multifunction copier in which the example of this invention is shown. In addition, the same number is given to the same component part as drawing 11, and explanation is omitted. The left-hand side part of the control unit shown in drawing 1 (a) is a part which applied this invention, and it usually consists of the 1st page which has appeared in the front face, and the 2nd page hidden in the inferior-surface-of-tongue side. As first shown in drawing 1 (a), in the example of illustration of a compaction key, 20 pieces are arranged by the key unit 20 of the 1st page for facsimile, and the top-face side is equipped with the change-over lid 21 which switches a compaction key. Moreover, the key unit 20 of the 1st page is supported to revolve by the control unit body case 1 by shaft 1a, the 2nd page is hidden in the inferior-surface-of-tongue side, and if the key unit 20 is opened up, as shown in drawing 1 (b) as the 2nd page, the edit relation key 22 is arranged. In addition, the 2nd page is visible from the outside, after the key unit 20 of the 1st page has closed.

[0017] The compaction key at the time of opening and closing the change-over lid 21 of the 1st page up and down changes, drawing 2 (a) and (b) show the situation, as for a compaction key, the change-over lid 21 serves as a key of the abbreviated number of 1-20 in the state of drawing 2 (a), and, as for a compaction key, the change-over lid 21 serves as

a key of the abbreviated number of 21-40 in the state of drawing 2 (b). Moreover, drawing 3 is the case where the key unit 20 is opened, and shows the situation out of which the editing-key 22 grade of the 2nd page has come. Moreover, drawing 4 and 5 are the important section sectional views of the control unit equivalent to the A-A line cross section of drawing 1, and the condition that the key unit 20 of the 1st page has closed drawing 4, and the condition that the key unit 20 was able to open drawing 5 are shown.

[0018] Hereafter, with reference to drawing 1 - 5, structure with the detailed control unit by this invention is explained. The key unit 20 of the 1st page consists of the keytop 15 and the change-over lid 21 which are used as a compaction key for FAX, key unit case 20a, and back lid 20b, and the keytop 15 is held by case 20a and back lid 20b. On the other hand, the 2nd page is constituted from a keytop 22 (22a, 22b), the display sheet 40, a switch 51, a change-over switch 53, LED23, and a printed circuit board 50 that gave the electrical circuit by the control unit body case 1.

[0019] If actuation is explained in such a configuration, and the depression of the keytop 15 of the 1st page is carried out first, a switch 51 will be pushed via keytop of 2nd page 22a, or keytop 22b by which eye hiding was carried out throughout a period of display sheet 40. On the other hand, in the condition that the key unit 20 is open, the 2nd page appears and a switch 51 is pushed by carrying out the direct depression of the keytop of 2nd page 22a. Moreover, since eye hiding is carried out with the display sheet 40, keytop 22b is not usually pushed. Even if naturally pushed, it is ignored on software. ON/OFF is performed by arm 21a which a change-over switch 53 is interlocked with the change-over lid 21, and moves. On the other hand, as closing motion detection of the key unit 20, when two or more ON of the key 55 by the side of the upper part [ unit / 20 / key ] is carried out by the key 15 by the side of the key unit 20 among the keytops for compaction of the 1st page, it opens, and it detects as a condition. For example, if the flow Fig. of drawing 6 explains actuation, when both "1" of the key 55 by the side of the upper part and "5" are turned on by the key 15 by the side of the key unit 20, it will be judged as open, and will be processed as an editing-key function. Change-over actuation is explained here using Table 1.

[0020]

[Table 1]

切換動作			
キー「1」and「5」	O F F		O N
切換スイッチ 53	O N	O F F	—
図 2 の「*」キーの機能	短縮キー 「1」	短縮キー 「2 1」	編集キー

[0021] First, by S61 of drawing 6, when "1" of the key 55 by the side of the upper part [ unit / 20 / of the 1st page / key ] and "5" are not ON at coincidence when the key unit 20 has closed namely The key unit 20 is close (S64), and serves as a FAX key function (S65). In this case The change-over lid 21 is pushed by the near side (condition of drawing 2 (a)), a change-over switch 53 is pushed by arm 21a, and 20 keys of the 1st page show the compaction key "1-20" of facsimile in ON condition. Moreover, the back side (condition of drawing 2 (b)), a change-over switch 53 separates from arm 21a, and the change-over lid 21 shows the compaction key "21-40" of facsimile in the OFF condition. a key "1" when the key unit 20 opens and the key 55 by the side of the upper part is pressed by the keytop 15 and "5" -- at both the times of ON, since the key unit 20 is open, the 2nd page appears (S62), and it switches to an edit relation key (S63). [ next, ] Therefore, as shown in Table 1, "\*" mark key at the upper left of drawing 2 is a compaction key "1" in the beginning, if the change-over lid 21 is raised upwards, it will turn into a compaction key "21", and if the key unit 20 is opened further, it will change a function to the exchange key to the edit mode. Thus, effectiveness -- it is easy to carry out actuation -- is expectable by securing the tooth space of a control unit and hiding few [ operating frequency ] keys in the 2nd page side by using a function with the same switch, switching with each change-over switch.

[0022] Next, drawing 7 is the flow Fig. showing another example of this invention. In said example, when the key unit 20 is judged to be open at the time of FAX mode (S70) (S71), an alarm display (S72) is performed on the liquid crystal screen (LCD) of a display 14, and cautions are demanded from a user (claim 2). Performing useless actuation, without a user noticing by this is prevented, and operability improves more.

[0023] Drawing 8 is the flow Fig. showing still more nearly another example of this invention. In said example, when ON actuation of the FAX key is carried out at the time of copy mode (S80), an alarm display (S82) is performed to LCD of (S81) and a display 14, and cautions are demanded from a user (claim 3). Performing useless actuation, without a user noticing by this is prevented, and operability improves more.

[0024] Drawing 9 is the flow Fig. showing still more nearly another example of this invention. When two or more coincidence push of the key by which eye hiding was carried out with (S71) and the display sheet 40 at the time of key unit 20 open [ above ] is carried out, it shifts to (S90) and the special mode (claim 4). (S91) And the condition in the special mode is maintained until a mode clearance is carried out (S92). By making it such a configuration, other functions can be used without increasing a key and structure becomes easy.

[0025] Drawing 10 is the flow Fig. showing still more nearly another example of this invention. In said example (the flow Fig. of drawing 7 , or flow Fig. of drawing 8 ) (S100), if fixed time amount progress (S101) is carried out to LCD of a display 14 after an alarm display, a switch (S102) in the mode will be performed automatically (claim 5). Thus, operability improves further to a user by making it switch to the mode which a user wants to use automatically.

[0026]

[Effect of the Invention] As explained above, according to the control unit of the multifunction copier by this invention, also with the seemingly small number of keys, the functional switch with a change-over lid and the 1st page [ by the key unit ] and 2nd-page switch can be performed, this change-over function can realize various functions, and there are contraction of a control unit configuration and effectiveness of improvement in operability. Moreover, effectiveness, such as improvement in dependability and a cost cut, is also expectable that there are few use components.

[0027] By the configuration of claim 2, also when a user is mistaken in operation, the effectiveness of being able to judge easily can be expected, and improvement in operability can be aimed at.

[0028] By the configuration of claim 3, also when a user is mistaken in operation, the effectiveness of being able to judge easily can be expected, and improvement in operability can be aimed at.

[0029] By the configuration of claim 4, in order to perform multi-functionalization by few keys, a control unit is made to a compact and improvement in operability nearby can be carried out.

[0030] The effectiveness of improving operability further is expectable to a user with the configuration of claim 5.

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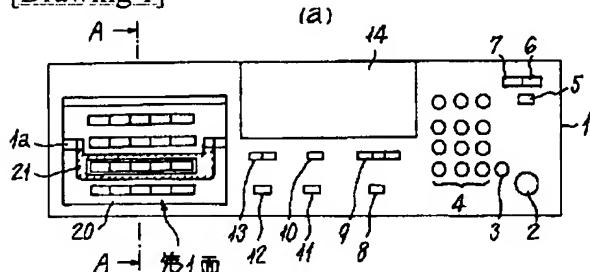
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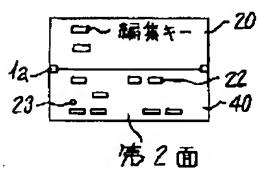
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## DRAWINGS

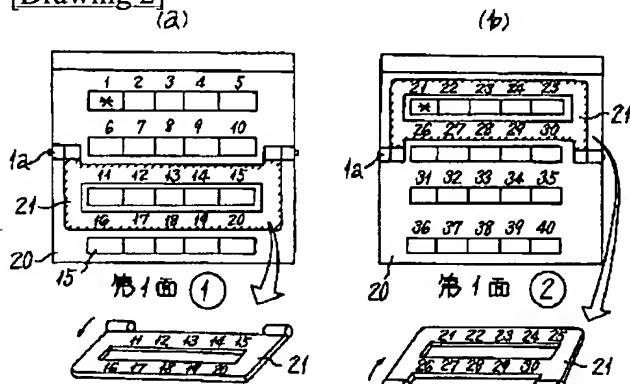
## [Drawing 1]



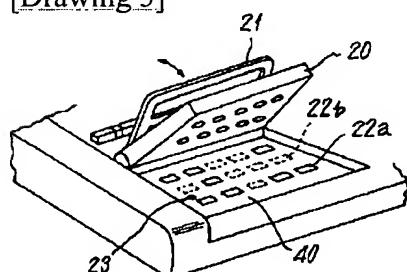
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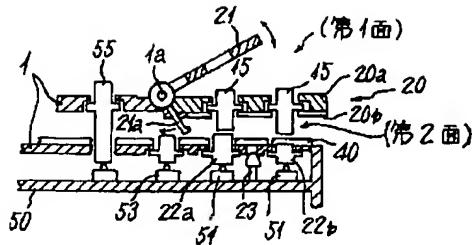
## [Drawing 2]



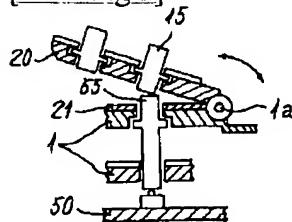
## [Drawing 3]



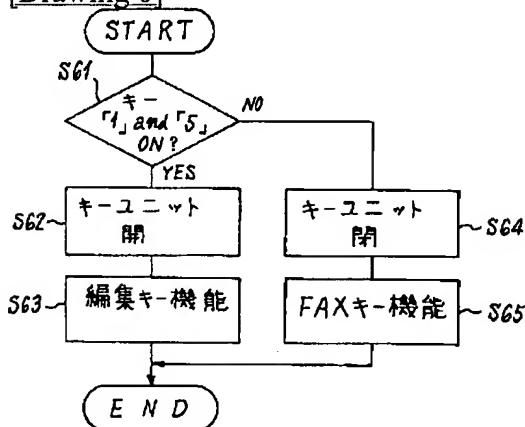
## [Drawing 4]



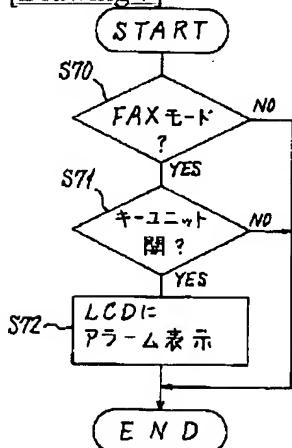
[Drawing 5]



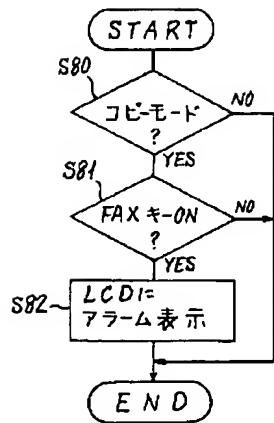
[Drawing 6]



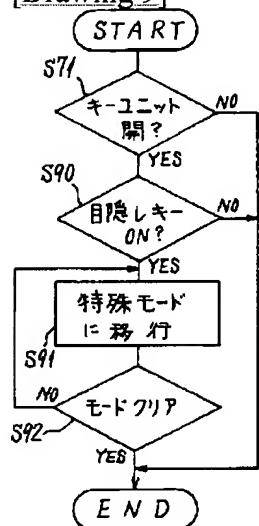
[Drawing 7]



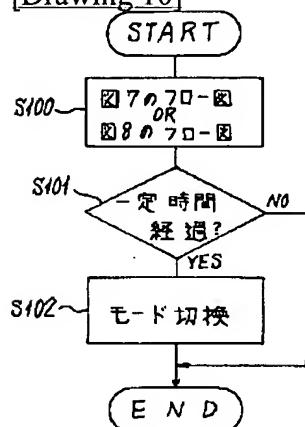
[Drawing 8]



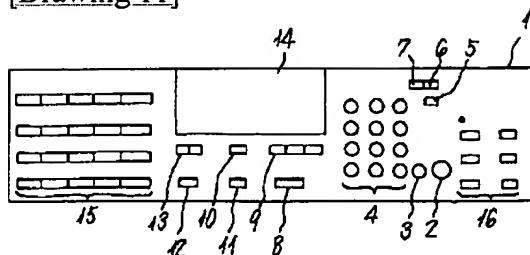
[Drawing 9]



[Drawing 10]



[Drawing 11]



[Translation done.]